

Claims

[001] A spool (12, 12a, 12b) for winding-up an adhesive carrier tape (52, 52a, 52b) of a packaging taped bag chain in an apparatus for taking up a succession of packaging bags, the spool (12, 12a, 12b) comprising a core (121) with a core surface (122) and walls (123') forming a race (125) where turns of tape (52, 52a, 52b) are wound-up, characterized in that the core surface (122) comprises resilient means (126) for releasing a radial pressure acting on the turns of tape (52, 52a, 52b) that have been wound-up first.

[002] The spool according to claim 1, wherein said resilient means (126) comprise at least one resilient projecting tongue (126).

[003] The spool according to claim 2, wherein a plurality of equally-spaced resilient projecting tongues (126) are provided on the core surface (122).

[004] The spool according to claim 2 or 3, wherein said at least one tongue (126) is fundamentally tangent to the core surface (122).

[005] The spool according to any of claims 2-3, wherein said at least one tongue (126) is inclined of an acute angle with respect to a tangent to the spool surface.

[006] The spool according to any of claims 2-5, wherein said at least one tongue (126) is moulded with the core surface or a part thereof.

[007] The spool according to any of claims 2-6, wherein the core surface comprises cavities (129) at the base of said at least one tongue.

[008] The spool according to claim 1, wherein said resilient means (126) comprise a continuous liner of a resilient material.

[009] The spool according to claim 8, wherein said resilient material comprises a material selected from the group consisting of: rubber and foamed plastic material.

[010] A spool assembly (10) for winding-up at least two adhesive carrier tapes (52, 52a, 52b) of a packaging taped bag chain in an apparatus for taking up a succession of packaging bags, the spool assembly comprising at least two spools (12, 12a, 12b), according to any of claims 1 to 9.

[011] The assembly according to claim 10, wherein it further comprises a differential gear unit positioned between said at least two spools, said differential gear unit being adapted to be, in use, removably connectable to a shaft of a bag loader whereby two carrier tapes can be wound up on said spools with equal tension.

[012] The assembly according to claim 11, wherein each of said spools has a recess in

a surface which faces the other spool and wherein said differential gear unit is positioned in said recess.

[013] The assembly according to claim 11 or 12, wherein each of said at least two spools is integrally formed with a bevel gear coaxial with said spool.

[014] The assembly according to claim 13, wherein said differential gear unit comprises a core and at least one satellite pinion gear attached to said core and positioned to mesh with each bevel gear.

[015] The assembly according to claim 14, wherein said differential gear unit core comprises a mating hole for mating with a shaft of a bag loader.

[016] The assembly according to any of claims 10 to 15, wherein it is contained in a housing, thus providing a cassette (140).

[017] A chain of packaging taped bags, the chain comprising a number of bags and at least two adhesive carrier tapes having respective free ends, wherein the free ends of the tapes are engaged with the spools of the spool assembly according to any of claims 10-16.

[018] An apparatus for taking up a succession of imbricated packaging bags carried by at least two carrier tapes (52, 52a, 52b), said apparatus comprising: at least two carrier tape winding spools (12, 12a, 12b) positioned coaxially with one another; and a differential gear unit positioned between said spools, said differential gear unit being adapted to be, in use, removably connectable to a shaft of a bag loader whereby two carrier tapes can be wound up on said spools with equal tension, wherein the spools are according to any of claims 1 to 9.

[019] The apparatus according to claim 18, wherein each of said spools (12, 12a, 12b) has a recess in a surface which faces the other spool and wherein said differential gear unit is positioned in said recesses.

[020] The apparatus according to claim 18 or 19, wherein each of said spools (12, 12a, 12b) is integrally formed with a bevel gear coaxial with said spool.

[021] The apparatus according to claim 20, wherein said differential gear unit comprises a core and at least one satellite pinion gear attached to said core and positioned to mesh with each bevel gear.

[022] The apparatus according to claim 21, wherein said differential gear unit core comprises a mating hole for mating with a shaft of a bag loader.

[023] The apparatus according to any of claims 18 to 22, wherein said spools and differential gear unit are housed in a cassette